

Office of Systems Safety and Mission Assurance

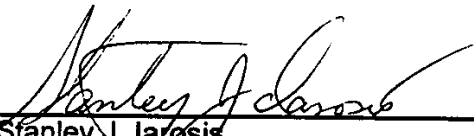
Assurance Management Office

Code 303

Office Operating Plan

June 22, 1998

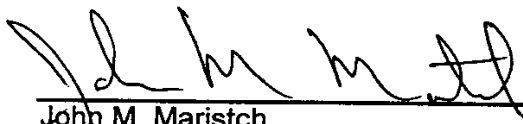
APPROVAL:



Stanley J. Iarosis
Chief, Assurance Management Office
CODE 303

23 JUNE 1998

DATE



John M. Maristch
Associate Chief, Assurance Management Office
CODE 303

23 June 1998

DATE

Table of Contents

1.0	Introduction
2.0	Mission Statement
3.0	Key Processes
4.0	Procedures
5.0	Short-term Goals
6.0	Long-term Goals
7.0	Resources
8.0	Business Operations
9.0	Organization Chart

1.0 Introduction

This Office Operating Plan describes the implementation of the assurance management function of the Assurance Management Office (AMO), Code 303, at the Goddard Space Flight Center. This plan documents the office level processes and associated metrics, procedures and resources used by the AMO to meet the needs of its customers. It also contains the office mission statement and goals. The plan reflects linkage to the Office of Systems Safety and Mission Assurance (OSSMA) Annual Operating Agreement (AOA).

2.0 Mission Statement

The Assurance Management Office at the Goddard Space Flight Center (GSFC) provides system safety and mission assurance support to GSFC space flight and space flight support projects. The AMO manages (a) technical implementation of the Systems Safety and Mission Assurance Program, (b) resources for services provided to projects, (c) the Agency workmanship standards effort, (d) the Agency-DCMC agreement for support, and (e) the Agency supplier assurance contract.

3.0 Key Processes

The AMO supports all 13 activities described in the OSSMA AOA. However, the primary OSSMA activity supported by the AMO is Mission Assurance Support and all of the AMO key processes can be linked to this activity. Nevertheless, the AMO is a significant contributor to all of the activities within the OSSMA. The AMO's primary activities or key processes include: (a) independent assessments which include data evaluation, audits and surveys, (b) the development of assurance requirements for GSFC projects, (c) systems safety and mission assurance planning and implementation, (d) AMO status reporting, and (e) workmanship standards and training. Each of these key processes produces product(s) or service(s) for AMO customer(s). Figures 1 through 5 describes these processes, identifies the specific product or service, and identifies the customer who is the recipient of these products and services. The metrics which the AMO uses to self evaluate its performance in each of these activities are also identified.

Office of System Safety and Mission Assurance Assurance Management Office NASA Goddard Space Flight Center Annual Operating Agreement Plan	
Customer: Center Director, Project Managers & Others as requested	
Activity Description - Independent Assessments <p>The Assurance Management Office is responsible for developing and conducting independent assessments, evaluating data, and seeking corrective actions to enhance the probability of acceptable products and services. Independent assessments include internal, vendor, and system level audits and surveys on products (hardware and software) and services. Assessments shall be performed pre-award and post award of a contract and during the life cycle of a product.</p>	
Risk of Not Doing: Risk of accepting poor products and services that may impact mission success. Risk to cost, delivery, quality, and reliability of products and services by awarding contracts to ineffective contractors.	
Products or Services: Audit/Survey & follow-up reports on corrective actions implemented Database of audits/surveys performed with all criteria included	Metrics: Schedule vs. completed Number of Noncompliances vs. corrective actions implemented
Projects/Tasks: Surveys and audits on products and services.	

Figure 1

Office of System Safety and Mission Assurance Assurance Management Office NASA Goddard Space Flight Center Annual Operating Agreement Plan	
Customer: Project Manager	
Activity Description - Development of Assurance Requirements This activity provides the support to a Project Manager in defining tailored SSMA requirements for the project. This activity includes the development of SSMA requirements for purchase orders, RFP's, AO's, and responses to AO's.	
Risk of Not Doing: Lack of tailored SSMA requirements results in an undefined risk mitigation program. This will reduce product reliability and decrease probability of mission success by the acceptance of products or services that do not satisfy mission requirements. This may result in increased costs and schedule delays due to hardware and software failures during integration and test and/or on orbit failures during mission operation.	
Products or Services: Inputs to Risk Management Plan Mission Assurance Requirements Document Assurance section for SOW Section L&M of RFP SSMA section of proposals	Metrics: SSMA resources (Plan vs. Actual) Approved SSMA req. document (No. of Projects vs. Approved Requirements)
Projects/Tasks: Supporting to GSFC Project Manager in the tailoring of SSMA requirements.	

Figure 2

<p align="center"> Office of System Safety and Mission Assurance Assurance Management Office NASA Goddard Space Flight Center Annual Operating Agreement Plan </p>	
<p>Customer: Project Manager</p>	
<p>Activity Description - System Safety and Mission Assurance Planning and Implementation</p> <p>This activity develops and implements an integrated System Safety and Mission Assurance plan for GSFC products and services. The plan is developed in conjunction with the Project Manager and based on the tailored Mission Assurance Requirements for the project.</p>	
<p>Risk of Not Doing:</p> <p>Lack of effective and adequate System Safety and Mission Assurance which would result in poorly planned resources, requirements, and scheduling ultimately affecting mission success.</p>	
<p>Products or Services:</p> <p>Surveillance Plan Assurance Management Planning documentation Support Risk Management Planning Surveillance of contractor Government Source Inspection SSMAP</p>	<p>Metrics:</p> <p>SSMA resources (planned vs actual) SAM Fever Charts Monthly PBC Metric Chart on support contract performance</p>
<p>Projects/Tasks:</p> <p>SSMA planning and implementation for GSFC Products and Services</p>	

Figure 3

Office of System Safety and Mission Assurance Assurance Management Office NASA Goddard Space Flight Center Annual Operating Agreement Plan	
Customer: OSSMA Senior Management and Project Managers	
Activity Description – AMO Status Reporting The AMO provides senior OSSMA management written and verbal information on SSMA issues, concerns, and general status related to GSFC products and services.	
Risk of Not Doing: Inappropriate distribution of resources.	
Products or Services: Weekly Staff Notes Monthly SAM reviews Code 300 pre-MSR Code 300 Code Q Quarterly SAM inputs to Programmatic Concerns Database Independent reports to Project Management Co-located SAM support to Projects	Metrics: Unsolicited feedback from OSSMA senior management and Project Management
Projects/Tasks: AMO reporting	

Figure 4

<p align="center"> Office of System Safety and Mission Assurance Assurance Management Office NASA Goddard Space Flight Center Annual Operating Agreement Plan </p>	
<p>Customer: Project Managers</p>	
<p>Activity Description - Workmanship Standards Program</p> <p>This process is performed in conjunction with the Jet Propulsion Laboratory. It involves the establishment of spaceflight hardware hand-assembly standards, instructional materials, and the provision of classroom training in the following technologies: (a) Hand and Wave Soldering, (b) Cable, Crimp, and Harness Assembly, (c) Polymerics Application, (d) Surface Mount Technology, (e) Optical Fiber Termination and Installation, (f) Electrostatic Discharge Control, (g) Rework, Repair, and Modification of Printed Wiring Assemblies, (h) Introduction to Space Flight Hardware Workmanship Standards.</p>	
<p>Risk of Not Doing:</p> <p>Lack of established workmanship standards and training results in reduced quality and uniformity of space flight hardware assembly techniques, resulting in greater likelihood of hardware failure or performance degradation.</p>	
<p>Products or Services:</p> <p>(a) Training Center Operations</p> <p>(b) Development and coordination of NASA Assurance Standards</p> <p>(c) GSFC Project Support</p>	<p>Metrics:</p> <p>(a) Total number of students served. Cost per student served.</p> <p>(b) Frequency of Standards Committee meetings and timely dissemination of resulting reports.</p> <p>(c) Timely communication of standards changes down to implementing levels.</p>
<p>Projects/Tasks: (a) Provision of classroom training and proficiency testing for operators, inspectors, and instructors, (b) Review of contractor procedures that implement the standards, (c) Coordination of Standards Committee and industry association meetings, (d) Dissemination of standards and technical information to user communities.</p>	

Figure 5

4.0 Assurance Management Office (Code 303) Procedures: The following Table lists the procedures which are controlled and followed by the AMO. The actual procedures can be found in the Office of Flight Assurance Handbook, Volumes I-IV. It should be noted that these procedures will be reviewed for format, content, and applicability during the ISO9001 registration project during FY98 and FY99 and updates and changes to these procedures are anticipated.

Doc No.	Document Title	Revision Level and Date
303-115	Flight Assurance Manager and System Assurance Manager Status Reporting	Rev. B 8/8/94
303-120	QA Letters of Delegation	Rev. C 7/7/97
303-121	Letters of Assignment	1/6/92
300-125	Flight Assurance Audits - Contractors	3/6/92
303-126	Flight Assurance Audits – In-Plant Rep's	11/23/92
303-127	Software Assurance Audits	5/10/95
300-128	Functional Management Review – Self Assessment	7/27/94
303-206	Software Development Reviews	3/24/94
303-540	EEE Parts and Devices Discrepancies	1/31/92
303-625	Fastener Inspection	1/31/92
303-626	Fastener Inspection/Test Plan	1/6/92
303-650	Material Verification - Aluminum	1/6/92
303-810	Procurement Documents review – General	8/27/91
303-811	Procurement Documents Review – Code 750	Rev. A 4/23/93
303-812	Procurement Documents Review – Support Service Contracts	1/31/92
303-817	Evaluation of Printed Wiring Board (PWB) Coupon Microsections	Rev. A 3/21/97
303-820	The GSFC Certification Log	1/31/92
303-840	Electrostatic Discharge (ESD) Control	Rev. A 10/27/93
303-845	Problem Record Items	1/31/92
303-846	Material Review Board	1/31/92
303-011	NASA/GSFC Quality Deficiency Report	5/5/89
303-849	Problem Failure Reporting	8/27/93
302-850 303-013	Procedure for the Spacecraft Orbital Anomaly Report (SOAR) System	Rev. C 5/86
303-855	Fabrication and Assembly Quality Assurance – Code 750	3/6/92
303-857	Lifting of Space Flight Hardware	4/23/93
303-858 303-003	Configuration Verification Inspection	11/7/83

303-875	Control of Inspection Stamps	9/16/91
303-1010	Tailoring Ground System Assurance Requirements	6/26/95
303-1015	Monitoring Software Development	10/29/93
303-1025	Monitoring and Witnessing Ground Data System Testing	2/9/93
303-1030	Software Nonconformance Reporting and Corrective Action	11/23/92
303-1040	Software Risk Management	5/23/94
303-1045	Evaluation of Software/Firmware Delivery Data Packages	11/8/94
OFA-GB-001	Assurance Guide for Tailoring The Ground Systems Performance Assurance Requirements (GSPAR)	6/95
OFA-GB-SW1	Guidelines and Methods for Monitoring Software Development Projects	11/93
OFA-GB-SW2	Assurance Guide for Software Development Reviews.	3/94
303-000	Office of Flight Assurance (OFA) Handbook	9/12/91
300-005	Flight Assurance Procedures (FAP) Documentation Standards and Controls	9/6/91
303-015	Preparation of Performance Assurance Requirements (PAR) Documents	6/11/93
303-051	Systems Assurance Manager Training	5/10/95
303-062	Cost – Plus – Award – Fee (CPAF) Contracts Performance Assurance Evaluation	1/6/92
300-063	Forecasting, Monitoring and Evaluating Office of Flight assurance Support Contractor's Work	3/6/92
300-064	Initiating and Authorizing Office of Flight Assurance Support contractor Work Requests	3/6/92

5.0 Short Term Goals

In FY98 the AMO assumed additional functions as a result of the downsizing at NASA Headquarters, GSFC reorganization, and the increased emphasis on customer support and satisfaction. The new functions include on-orbit mission support, workmanship and workmanship training, Agency point of contact for DCMC support, and the supplier assurance contract. As a result of these new duties the AMO has identified the following short term goals to be accomplished by January 1, 1999:

- a. Update the OSSMA Mission Assurance Guidelines document, which provides a pick list to assist project managers to tailor appropriate SSMA requirements.
- b. Provide effective mission assurance support to on-orbit mission operations.
- c. Establish workmanship standards function and agency point of contact for workmanship.
- d. Establish the management of the supplier assurance contract providing an alternative source for inspection services on flight products.
- e. Establish individual development plans for each Office employee and continue the biannual workshops that focus on important and relevant issues and policies.
- f. Support the GSFC plan for ISO9001 registration.

5. Long Term Goals

Looking beyond January 1999, the AMO is committed to meet the following long-term goals:

- a. Support ISO-9001 internal audit program.
- b. Hire and train civil servant Product Assurance Engineers (PAEs) in order to have a pool of qualified personnel who would be eligible to fill SAM positions as needed.
- c. Refine Mission Assurance Guidelines.
- d. Define, identify, and implement advanced quality concepts.

7.0 Resources

The AMO is comprised of civil service SAMs, Quality Assurance Specialists (QASs), and PAEs. A Chief and an Associate Chief provide management and supervision. A secretary provides office administrative support.

In general, SAMs, QASs and PAEs are co-located with Projects. Additionally, the OSSMA support contractor provides Quality Assurance Engineering and inspection support. In some cases, this civil service and/or support contractor support is provided on-site at flight hardware/software contractor facilities. Funding for the civil service and contractor support is provided by the projects.

The OSSMA support contractor is also performing tasks specifically funded by NASA Headquarters, Code Q, through Research and Technology Operating Plans (RTOPs). The AMO Associate Chief is responsible for Program Management of the Code 303 tasks. The FY98 funded tasks include: (a) NHB5300.4 (2B-2) update, (b) Professional Development Initiative (PDI) course development, (c) Heritage Hardware Library, and (d) update and development of Workmanship Standards.

AMO funding for travel and multi-program support (MPS) which includes printing, office supplies, ADP equipment and software, and lease of equipment is provided by the OSSMA Director and managed by the AMO Chief. Funding for Training for AMO civil service personnel is provided and managed at the OSSMA or Center level.

8.0 Business Operations

During the course of every day business, the AMO interacts closely with all the OSSMA Offices, which include Codes 300, 301, 302, and 304. These interactions as well as those outside of the OSSMA include the following:

- a. Interactions with Code 300, OSSMA :
 1. The AMO Chief submits the Institutional budget requirements including travel, training and MPS to the resources personnel in order to establish an AMO operating budget each fiscal year.
 2. The AMO Chief submits personnel actions to the OSSMA Administrative Assistant regarding AMO personnel performance appraisals, promotions, awards, retirements, resignations, hiring, and training requests.

3. The AMO Chief, Associate Chief, and SAMs support the Center manpower exercises. AMO support for GSFC Projects is identified in Statements of Work (SOWs). During the yearly manpower exercise, Code 300 resource personnel provide the SOWs to the AMO Chief. The AMO reviews each SOW for the AMO support level required by the Projects and identifies the amount of civil service and OSSMA contractor support that can be provided. The AMO also identifies in the OSSMA by-name-data-base the specific AMO civil service employee who will provide support against each SOW job order number. The AMO Chief or Associate Chief provides all inputs back to the Code 300 resource personnel.
 4. When support is required and funding is available, AMO personnel submit work requests for OSSMA support contractor tasks and provide monthly performance based contract metrics.
 5. The AMO Chief and Associate Chief prepare and present AMO status at the Code 300 pre-MSR (Monthly Status Review).
 6. SAMs prepare semiannually their project status and present this to Code 300 senior management. Also, beginning six months prior to a scheduled launch of their project's flight hardware, the SAMs present their status monthly.
 7. SAMs submit weekly staff notes. The AMO Chief and Associate Chief prepare and submit a consolidated report to OSSMA senior management. This report, called the OSSMA weekly staff notes, is reviewed with Code 300 senior management the first day of each workweek.
 8. AMO Chief participates in the weekly Code 300 senior staff.
 9. AMO Chief and Associate Chief meet with the OSSMA Director and Deputy in real time to discuss system safety and mission assurance related issues and respond to action items as they arise.
- b. Interactions with Code 301, Systems Review Office:
1. SAMs coordinate Code 301 project support with the Code 301 Office Chief and negotiate for these resources with the project.
 2. SAMs provide an assessment of project issues and concerns to the assigned systems review office manager as they arise and as a minimum one week prior to a schedule systems review (i.e. PDR, CDR, PER, etc).

3. SAMs coordinate project responses to RIDs (Review Item Discrepancies) prepared by the Code 301 review team.
 4. SAMs coordinate an appropriate review schedule between the project and Code 301.
 5. SAMs identify project programmatic concerns and coordinate with Code 301 in risk identification.
- c. Interactions with Code 302, Systems Safety and Reliability Office:
1. SAMs coordinate and determine the appropriate level of Code 302 support to their project for environmental verification technical support, project safety, reliability, risk management, and software assurance.
 2. SAMs incorporate the Code 301 Project Safety Manager status reports into the SAMs' weekly input for the OSSMA Weekly Staff Notes.
- d. Interactions with Code 304, Senior Advisory Office: AMO Chief, Associate Chief and SAMs provide support to anomaly investigations.
- e. Interactions outside of the OSSMA:
1. SAMs, PAEs, and QASs matrixed and/or colocated to projects and support development, planning, and implementation of SSMA program
 2. SAMs support the budgeting and coordinating support from the Component Technologies and Radiation Effects Branch, Code 562.
 3. SAMs support the budgeting and coordinating support from the Materials Engineering Branch, Code 541.
 4. AMO Chief and Associate Chief coordinates with project managers in the assignment and co-location of SAMs, QAS, and PAEs.
 5. SAMs negotiate with their projects for all OSSMA support civil service and contractor funding.
 6. AMO Associate Chief provides the Agency point of contact for workmanship and workmanship standards and training.
 7. AMO Associate Chief is the Agency point of contact for DCMC support and supplier assurance contract.

8. AMO Chief participates in the monthly enterprise leader meetings when requested by the OSSMA Director or Deputy.
 9. AMO Chief or designee represents OSSMA in Center committees as requested by the OSSMA Director or Deputy.
 10. AMO provides mentoring to summer students.
- 1.0 **Organizational Chart:** The following chart identifies, as of the date shown, the AMO civil service personnel and project assignments.

OFFICE OF FLIGHT ASSURANCE-ASSURANCE MANAGEMENT OFFICE-CODE 303

